

## Okeanos Explorer ROV Dive Summary

Dive Information			
General Location			
General Area Descriptor	National Marine Sanctuary of American Samoa		
Site Name	Aunu'u Unit		
Science Team Leads	Scott France/ Del Bohnenstiehl		
Expedition Coordinator	Kasey Cantwell		
ROV Lead	Bobby Mohr		
Mapping Lead	Mike White		
ROV Dive Name			
Cruise	EX1705		
Leg	-		
Dive Number	DIVE01		
Equipment Deployed			
ROV	Deep Discoverer		
Camera Platform	Seirios		
ROV Measurements	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1



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Purpose of the Dive	<p>The purpose of this dive was to collect the first deep water information in the Aunu'u Unit of the National Marine Sanctuary of American Samoa. A total of 5.8 square miles of reef and offshore waters around Aunu'u have been included in the sanctuary, with 3.9 square miles designated a research zone and allows surface fishing for pelagics only, and 1.9 square miles multiple use zone that allows traditional and non-destructive fishing practices. The research and multiple use zones will allow for comparisons over time of an area that prohibits the take of reef fish and bottom dwelling species and benefits to an adjacent area of higher human uses that meets the needs of day-to-day living in sustainable ways. Information on bottom fish off Aunu'u will be used to inform the next sanctuary Condition Report that will be produced in 2017/18 and the process update of the sanctuary management plan that will begin in 2017/18. Additionally, this area is of importance and interest to local governments and fishermen.</p>
Description of the Dive	<p>The ROV climbed a steep wall near the eastern edge of a coral platform that has grown on top of the volcanic rocks forming the Samoan Islands. The ROV first encountered the wall at a depth of 290 m, approximately 50 m above its base. Light-colored sediments, sourced from the coral platform above, were visible in cm-scale channels that were spaced up to a few meters apart. In some areas demosponges were observed within these channels, trapping sediments on their upslope side. Above 200 m depth, the number and size of cavities in the carbonate wall increased, providing additional three-dimensional habitat.</p> <p>Sessile fauna were sparse, and throughout the dive overall densities were low. Of the coral we saw black coral were most abundant, particularly unbranched wire coral (<i>Stichopathes</i>, Antipatharia). A number of small (&lt;3 cm) orange cup corals were seen during close-ups of the bottom. Other corals observed were all Octocorallia: possible Parisididae, a gorgonian fan (?<i>Paracis</i> sp.) with a chirostylid crab (<i>Chirostylus</i> sp.), shrimp and brittle star (Ophiuroidea) on it, and, as our final observation, a purple fan (?Plexauridae or Gorgoniidae). One zigzag-shaped, elongate skeleton was overgrown with dark zoanthids. Sponge observations were restricted to encrusting blue-colored demosponges and white mound demosponges; most of the latter were observed within erosion channels. Reddish-purple patches on the rock were interpreted as coralline red algae.</p>



Pandalid shrimp (*Plesionika* sp.) were observed in abundance below overhangs where snapper (*Paracaesio* sp) were also seen. *Plesionika* are often found in swarms of individuals, and may be fished for use in animal feeds. Other crustaceans observed included a munid squat lobster (*Babamunida* sp.) and a hermit crab (Paguridae).

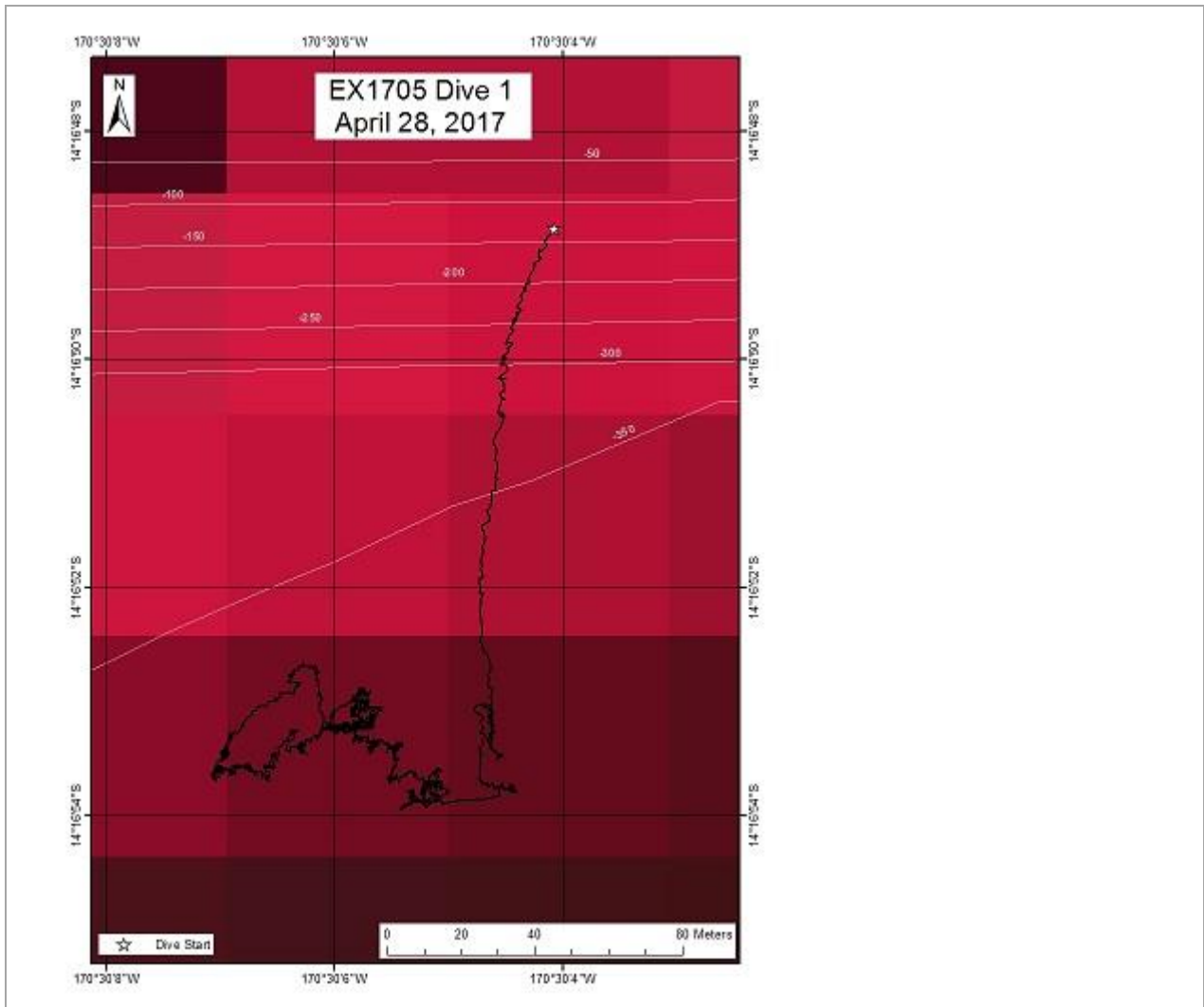
Three species of sea star were seen: *Circeaster pullus* (Goniasteridae), *Nepanthia* sp. (Asterinidae), and *Brisingaster* sp. (Brisingidae)[perched on a black coral whip]. Brittle stars (Ophiuroidea) were observed only on coral colonies, and not directly on any rock.

A small octopus (<10 cm) was observed associated with cavities in the wall.

The extreme slope we traversed is likely not optimal habitat for bottomfishes, which prefer ledges and deep crevices for hiding and with lots of prey species. Among the fish that were seen were snappers (*Paracaesio* sp), groupers (*Cephalophilus* sp.), diamond tails (*Grammatonotus*), possible pomfret (Bramidae), bassletts, duckbill (*Chrionema* sp.), and a mesophotic goby (considered an unusual observation for this depth – 235 m). Abandoned fishing gear (mostly long stretches of line) were observed throughout the dive

Overall Map of the ROV Dive Area

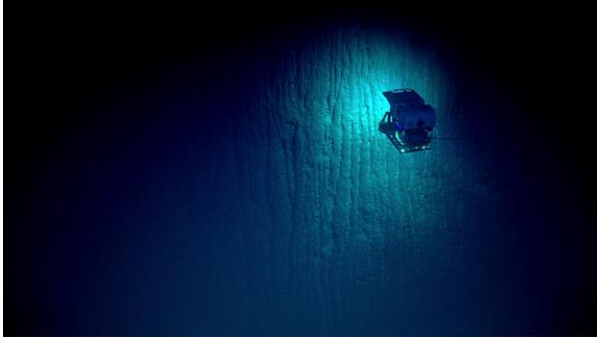




Representative Photos of the Dive







View of the wall surveyed during Dive 01 from ROV *Seirios*. The steep wall had few coral colonies.



Sediment within small-scale groves on the steep slope.



Snapper and grouper by cavity in wall surveyed during Dive 01. Several organisms were found to be gravitating towards these overhangs throughout the dive.



Paracis octocoral with associates (chirostyliid, ophiuroid), blue sponge, red coralline algae.

**Samples Collected**

No Samples were collected during this dive.

**Please direct inquiries to:**

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